



Disbursement of Federal Funds Pursuant to the Federal Water Pollution Control Act

2005 Update

(per Senate Bill 150, 1st Session of the 49th Legislature, 2003)



Prepared By:

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1 November 2005



EXHIBIT

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Introduction

During the 1993 reorganization of Oklahoma's environmental agencies, the office of Secretary of the Environment was established by statute to serve, among other things, as the primary recipient of Federal Water Pollution Control Act ("Clean Water Act") grant funds in Oklahoma. The role of recipient of Clean Water Act funding provides the Secretary of the Environment with a unique opportunity to ensure that state agencies' water quality management activities are well-coordinated and of high quality.

Ten years after passage of the Environmental Quality Act of 1993, the Oklahoma Legislature sought minor changes to this oversight responsibility through passage of Senate Bill 150 (2003 Session). In addition to seeking increased coordination through consultation with the Secretary of Agriculture, the Legislature added the requirement of an annual report to heighten accountability and increase understanding of how Clean Water Act funds are disbursed throughout the state.

Funding is delivered to Oklahoma's Secretary of the Environment from the U.S. Environmental Protection Agency ("EPA") through five distinct grant programs that are defined by the section of the Clean Water Act in which each is established: Section 104(b)(3), Section 104(b)(3) Wetlands, Section 106, Section 319, and Section 604(b). Each grant program has its own priorities, guidance, and funding cycles. This report summarizes the Clean Water Act grant program funding received by the Secretary of the Environment during the 2005 Federal fiscal year of October 1, 2004 – September 30, 2005 (see Table 1 for overview) as well as the expenditures for the same period (see Table 2 for overview).

Table 1. Clean Water Act Funding Awarded to Subrecipients
(Federal Dollars for Federal Fiscal Year 2005).

	Association of Central Oklahoma Governments	Indian Nations Council of Governments	Oklahoma Conservation Commission	Oklahoma Department of Agriculture, Food and Forestry	Oklahoma Department of Environmental Quality	Oklahoma Water Resources Board	Office of the Secretary of the Environment
FY 05 104(b)(3) Water Quality Cooperative Agreement*						\$199,500	
FY 05 104(b)(3) Tribal Water Quality Cooperative Agreement*							\$61,460
FY 05 104(b)(3) Regional Environmental Monitoring and Assessment*						\$304,000	
FY 05 104(b)(3) Wetlands Protection*			\$266,393			\$113,132	
FY 05/06 106 Program				\$118,750	\$2,897,840		\$171,365
FY 05 319(h) NPS Program			\$3,056,300				\$117,000
FY 05 604(b) Water Quality Management Program	\$20,000	\$20,000				\$60,000	
TOTAL FUNDING	\$20,000	\$20,000	\$3,322,693	\$118,750	\$2,897,840	\$676,632	\$349,825

*Funds were awarded prior to September 30, 2005. The project(s), however, cannot begin until October 1, 2005.

Section §104(b)(3) Program

Section 104(b)(3) authorizes funding to State agencies, Tribes, other public or nonprofit private agencies, institutions, organizations and individuals to conduct and promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys and studies relating to causes, effects, extent, prevention, reduction and elimination of pollution. Funding is available annually through both EPA Headquarters and EPA Region 6 and usually requires a 5% match. The funding is normally competitive on a regional basis. However, at times, EPA may offer provisional funding to states or regions for a specific purpose. The funding period for this program is approximately three (3) years.

FY 05 §104(b)(3) Water Quality Cooperative Agreement

Project 1 – Probabilistic Monitoring of the Illinois River Sub-basin – OWRB ... \$199,500

The objective of this project will allow for a statistically valid assessment of the condition of all stream/river miles within the Illinois River Sub-basin which will provide a water quality baseline. It will assist in long- and short- range planning and resource allocation within the basin as well as refinement of both numerical and narrative water quality standards.

FY 05 §104(b)(3) Regional Environmental Monitoring and Assessment Program

Project 1 – Continuation of a Stream/River Probabilistic Sampling Network for the State of Oklahoma - OWRB \$304,000

The purpose of this project is to determine the overall health of Oklahoma's streams and rivers through a statistically valid approach; to assist the development and validation of statewide biocriteria and nutrient criteria; to provide an additional data layer for determining localized monitoring needs and developing short- and long-term monitoring goals; and to evaluate the feasibility of using land use and land cover data to predict biological integrity and target monitoring efforts.

FY 05 §104(b)(3) Tribal Water Quality Cooperative Agreement

Project 1 - Water Quality Monitoring Training for Tribal Environmental Staff within U.S. EPA Region 6 \$61,640

The Office of the Secretary of Environment, in cooperation with our sister agencies, proposes to provide a series water quality monitoring workshops for tribal environmental staff from within Region 6. The primary objective of the workshops is to provide comprehensive water quality monitoring training. The secondary objective of the workshops is to provide the opportunity for those attending the training to interact with state agencies staff, staff from other tribal governments, and U.S. EPA.

Section §104(b)(3) Wetlands Program

Section 104(b)(3) Wetlands authorizes funding for the development and implementation of activities to protect state wetlands. The goal of the program is to build the capacity of all levels of government to develop and implement effective, comprehensive programs for wetland protection and management. This grant program is competitive on a regional basis and requires a 25% match. A funding level of approximately \$1.2 million is available per year at the regional level. The funding period for this program is approximately three (3) years.

FY 05 §104(b)(3) Wetlands Protection Workplan

Project 1 – Creation of a Vegetated Wetland Throughout the Littoral Zone of Lake Stanley Draper - OWRB..... \$113,132

The objective of this project is to demonstrate the restoration of the shoreline of Lake Stanley Draper to lacustrine wetlands. The longterm results will be reduced turbidity, enhanced fish nursery habitat, and improved water quality.

Project 2 – Wetlands Monitoring Program Development – OCC..... \$266,393

The goal of this project is to further develop Oklahoma's wetlands monitoring program through the creation of a probabilistic monitoring design and interactive wetland mapping system. The result will be the ability to estimate wetland gains/losses and eventually wetland quality statewide, with increased analytical opportunities for the public as well as private sectors.

Section §106 Program

Section 106 of the Clean Water Act authorizes assistance to the State in administering programs for the prevention, reduction, and elimination of water pollution including programs for the development and implementation of groundwater protection strategies. The state receives approximately \$2,100,000 for surface water and groundwater activities. The state is required to set forth a minimum level of effort towards the §106 program of \$257,655. All base surface and groundwater activities are included in the FOCUS document, which is part of DEQ's Performance Partnership Grant. By including the activities in the FOCUS document, EPA allows DEQ flexibility and the ability to cross fund programs. Activities and projects under this grant program are reviewed and awarded on an item-by-item basis. The Workplan includes new projects as well as projects not completed within the previous grant cycle. The program period for the §106 grants is two years.

Please note: \$644,062 of the two-year program was awarded to OSE prior to October 1, 2004 and accounted for in the 2004 SB 150 Update. Dollar amounts listed below for the FY 05/06 §106 Workplan are for the two-year period.

FY 05/06 §106 Program (July 1, 2004 – June 30, 2006)

FY 05/06 Core Activities - ODEQ \$3,078,102

- Administration – The agency will monitor its finance, personnel and data processing operations. Surveys will evaluate customer satisfaction with major program activities.
- Enforcement – The agency will ensure compliance with the law through an enforcement program that will include issuing orders and assessing fines.
- Permitting – Permitting, along with rulemaking, provides the basic tool for controlling pollutant discharges. Particular emphasis will be placed on the issuance of high quality permits in a timely manner.
- Planning – The agency will implement a planning process called “FOCUS” to integrate budget, planning, personnel evaluation and reporting based on measuring for results.
- Sludge –The agency will review and respond to all sludge management plans within 60 days of receipt of all necessary information to ensure that construction is performed.
- TMDL – The agency will develop and/or review TMDL/WLA models in accordance with schedules established in the 1998 303(d) list and submit these models to EPA for approval
- Groundwater Monitoring – The agency will continue to conduct both environmental and programmatic monitoring to determine the effectiveness of its programs

FY 05/06 §106 Workplan

Project 1 – Management and Coordination - OSE \$410,371

This project provides for maintenance of federal responsibility/accountability of funds to support all Clean Water Act programs. The Governor has initiated, and will continue to initiate, activities for the protection of water quality through the Office of the Secretary of Environment. This project provides staff assistance to facilitate progress in these activities.

Project 2 - Statistical Analysis - ODEQ \$1,943

The purpose of this project is to 1) compile information on water quality collected by various divisions of ODEQ over the years into a single database, 2) determine if the quality of the data are sufficient to preform statistical analyses of the information, 3)

perform statistical analyses on the data, 4) do 305(b) reports and 5) make information available to the public.

Project 3 - Water Quality, Flow, and Sediment Monitoring Plan for Tar Creek Basin – ODEQ..... \$119,835

This project will 1) initiate flow weighted stream/mine water monitoring at established wadable sites in Tar Creek basin; 2) monitor high flow at six sites in the watershed area; 3) calculate metals loading in Tar Creek, including sediment load, and analysis of bed material and estimate the impact immediately below its confluence with the Neosho River due to dilution (and other) factors; 4) verify the quality of water flowing to Grand Lake; and 5) evaluate damage to biota at three individual monitoring sites (above, within and below mine discharge).

Project 4 – Surface-Water Quality in the Grand-Neosho River Basin, Northeastern Oklahoma – ODEQ..... \$92,540

The objectives of this project are to (1) analyze high-flow water samples from Tar Creek, the Spring River, and the Neosho River for general water properties, trace elements, and major ions; (2) utilize continuous stream flow data and water quality data from Tar Creek, Neosho River, and Spring River to estimate water and sediment quality entering Grand Lake; and (3) quantify the sediment movement and composition in Tar Creek, the Neosho River, and the Spring River under high flow conditions. The project will also enhance the current stream-monitoring network in the Picher-Miami-Commerce area. Data collected will provide information to aid Federal, State, Tribal and local officials in the remediation of the area.

Project 5 - TMDL Development for the Washita River Below Foss Reservoir Phase I (part 2) – ODEQ..... \$150,000

The purpose of this project is to produce a TMDL for the targeted watershed and to support Watershed Restoration Action Strategy development.

Project 6 - TMDL Monitoring – Washita River Watershed above Foss Dam – ODEQ..... \$36,000

The purpose of this project is to collect water quality data to verify waterbody impairment and to support TMDL development for all pollutants of concern. The data collection will be designed to assist in identifying the source(s) and extent of impairment to the waterbodies.

Project 7 - Blue River Watershed TMDL Phase I Water Quality Monitoring – ODEQ..... \$4,250

The purpose of this project is to collect water quality data to verify waterbody impairment and to support TMDLs for nutrients, suspended solids and noxious aquatic plants. The data collection will be designed to assist in identifying the source(s) and extent of impairment to the waterbodies

Project 8 - TMDL Development – Wister Lake – ODEQ..... \$13,011

The intent of this project is to develop the Total Maximum Daily Load for the pollutant of concern for Wister Lake. The data for the TMDL will be the existing data collected by various agencies.

Project 9 - Illinois River Watershed TMDL Phase I Water Quality Monitoring for Metals & Pesticides – ODEQ..... \$42,345

The objective of this project is to collect water quality data to verify waterbody impairment and to support a TMDL for metals and pesticides. The data collection will be designed to assist in identifying the source(s) and extent of impairment to the waterbodies.

Project 10 - TMDL Monitoring – Atoka Lake Watershed - ODEQ..... \$56,476

The objective of this project is to collect water quality data to verify waterbody impairment and to support TMDL development for all pollutants of concern. The data collection will be designed to assist in identifying the source(s) and extent of impairment to the waterbodies.

Project 11 - North Canadian River Pathogens TMDL - ODEQ..... \$14,386

The objective of this project is to collect monitoring data and develop a Total Maximum Daily Load model for pathogens in the North Canadian River. The study area encompasses the North Canadian River in the Oklahoma City metropolitan area. The Association of Central Oklahoma Governments, with guidance from the ODEQ, will conduct project activities.

Project 12 - Arkansas River Metals TMDL - ODEQ..... \$40,517

The objective of this project is to collect existing data from recent studies by INCOG, the City of Tulsa and others and develop a TMDL model for the Arkansas River. The TMDL will include all Arkansas River segments between Sand Springs and Broken Arrow, Oklahoma. All eleven metals currently listed in the Oklahoma Water Quality Standards will be modeled. Mixing zone models will be developed for metals of concern that are identified in the TMDL modeling process. The Indian Nations Council of Governments will conduct project activities with guidance from the ODEQ.

Project 13 -Bacteria TMDL Development Using GIS Toolbox - ODEQ.....\$43,569

This project is intended to develop bacteria TMDLs using the tools being developed by Parsons Water & Infrastructure, Inc. in cooperation with EPA Region 6 and ODEQ. The "toolbox" comprises a load duration curve tool and a GIS spreadsheet tool. The load duration curve tool estimates relative point and nonpoint source loads indication bacteria based on instream flow and concentration data. The GIS spreadsheet tool predicts nonpoint and point source loading of indicator data.

Project 14 - TMDL Monitoring on Priority 1 and Priority 2 Waters Listed on the 1998 303(d) List - ODEQ..... \$83,603

The objective of the proposed sampling initiative is to 1) establish if listed waters are currently meeting their assigned beneficial uses, 2) gather historical data (if available) to be used in Phase 1 of the TMDL process and 3) support TMDL development. The Oklahoma Water Resources Board will conduct project activities with guidance from the ODEQ.

Project 15 - Basin 6 & 7 TMDL Water Quality Monitoring - ODEQ..... \$43,135

The objective of the proposed sampling initiative is to 1) determine if listed waters are currently meeting their assigned beneficial uses, 2) gather historical data (if available) to be used in Phase 1 of the TMDL process and 3) support TMDL development. The Oklahoma Water Resources Board will conduct project activities with guidance from the ODEQ.

Project 16 - Comparison Study of Water Quality from PWS Wells and other wells in Central Oklahoma Aquifer - ODEQ..... \$36,265

DEQ will use public water supply ("PWS") wells to characterize water quality in major aquifers. Specifically this study will compare the results of chemical analysis of PWS wells with other data from the Central Oklahoma Aquifer to evaluate the "equivalence" of information. USGS will reactivate portions of its former sampling program to establish if water quality of waters from non-PWS wells is comparable to water from PWS wells in the Central Oklahoma Aquifer. The United States Geological Survey will conduct project activities with guidance from the ODEQ.

Project 17 - Review of Monitoring and Assessment Data to Support Development of TMDL for Lake Tenkiller and Illinois River Watershed - ODEQ..... \$74,641

In conducting a Total Maximum Daily Load (TMDL) study for the Tenkiller Ferry Reservoir and its attendant watershed, the ODEQ Water Quality Division will use the Soil & Water Assessment Tool (SWAT) computer model simulation by Oklahoma State University to estimate a maximum allowable nutrient loading. Oklahoma State University will conduct project activities with guidance from the ODEQ.

Project 18 - Ground Water Monitoring FY03/04 – Continuation of Project 2 – ODEQ..... \$27,963

This project will continue the ambient groundwater monitoring program administered through the ODEQ. The primary objective of this project is to assess the quality of groundwater. In the long term, data will be analyzed for trends to identify areas where measures should be taken to preserve the beneficial uses of the groundwater. These objectives will be met by sampling a subset of Public Water Supply wells to determine current constituent levels.

Project 19 - Statewide Groundwater Quality Analysis Using GIS FY03/04 – ODEQ..... \$4,999

State agencies have been gathering data on groundwater quality for many years. ODEQ wants to use this information to develop maps showing the quality of water in

the major aquifers in Oklahoma. Using new GIS software and more powerful hardware, ODEQ will be able to create layers over images of aquifers with isopleths of water quality data. These will help citizens of Oklahoma ascertain groundwater quality for every major aquifer area for many parameters.

Project 20 - Proposed Stream Gaging Program (Year 5) - ODEQ..... \$95,000 (FY 05 Based Funds)

The monitoring sites listed in this proposal for funding are all located in Unified Watershed Assessment Category I watersheds. These monitoring sites are critical to TMDL development and are also essential in tracking the progress of TMDL implementation procedures. Flow data will be used to assess the total pollutant loading, and the water quality data will be used to determine the degree of impairment to the water's beneficial use(s). Where appropriate, screening and review criteria developed for the 303(d) program will be utilized to assess impairment. The United States Geological Survey will conduct project activities with guidance from the ODEQ.

Project 21 – TMDL Guide Development..... \$2,665

This project seeks to impact all TMDL stakeholders statewide through the distribution of TMDL Guidance information in the form of a guidance document, pamphlets, and public meetings.

Project 22 - Licensed Managed Feeding Operations Monitoring Well Sampling for 2004 – ODAFF..... \$137,500

The Oklahoma Concentrated Animal Feeding Operations Act (2 O.S. § 9-205.4(F)(3)) and its implementing regulations (OAC 35:17-3-11(e)(6) (H)) both require that the Oklahoma Department of Agriculture, Food, and Forestry (ODAFF) annually sample monitoring wells at swine Licensed Managed Feeding Operations (LMFOs). This project will allow for the collection of groundwater samples at monitoring wells of LMFOs and a review of the analyzed data for indication of possible pollution. Determining the sources of pollutants in groundwater will aid ODAFF in assessing whether LMFOs negatively affect nearby groundwater quality and what actions are necessary to address such pollution.

Section § 319(h) Nonpoint Source Program

Section 319(h) of the CWA authorizes funding to designated State agencies to implement the State's NPS management program to control nonpoint source pollution. The state receives approximately \$3,000,000 annually and is required to provide a 40% match. The funds within this grant program are tied to priorities listed within Oklahoma's Nonpoint Source Management Plan and directed by the Nonpoint Source Working Group. The Oklahoma Conservation Commission serves as the technical lead agency for the program. The funding period for this program is five (5) years.

FY 05 319(h) Program

Project 1 - Coordination and Management of Oklahoma's NPS Program – OSE
 \$117,000

Provide support for coordination and management of the FY 05 319 (h) grant and related activities, including departmental and technical review, coordination of interagency technical review, and management and maintenance of Oklahoma's Nonpoint Source Grants Reporting and Tracking System.

Project 2 - FY 2005-2006 319(h) Project 2 Oklahoma Conservation Commission Implementation of the NPS Management Program October 2005- June 2006 - OCC
 \$925,439

The purpose of this project is to provide staff support and funding to implement Oklahoma's Comprehensive Nonpoint Source Pollution Program, including planning, assessment, education, and implementation activities between October 1, 2005 and June 30, 2006.

Project 3 - Rotating Basin Monitoring Program (Year 6) – OCC \$607,368

The purpose of this project is to implement year six of the Rotating Basin Monitoring Program. Through implementation of this program, it will be possible to ascertain the beneficial use support status of streams in the specified watersheds, to collect information of nonpoint sources of pollution, and to evaluate success of implementation and education efforts.

Project 4 – Statewide Blue Thumb Program – OCC \$278,979

The goals of the Statewide Blue Thumb program includes promoting the Blue Thumb Program throughout Oklahoma, particularly through conservation districts; organizing and supporting satellite programs; water quality education activities; volunteer water quality monitoring; and groundwater education/screening programs.

Project 5 - Fort Cobb Watershed TMDL Implementation Project..... \$1,244,514

This program will attempt to install 35,000 acres of no-till cropland in the Fort Cobb watershed to work towards the TMDL recommendation that 50% or approximately 51,000 of the 101,000 acres of cropland are no-till. This will accomplish approximately 69% of that TMDL goal. As a result, this implementation could eventually lead to a phosphorus load reduction of 12% for the Fort Cobb Watershed.

Section §604(b) Water Quality Management Program

Section 604(b) of the CWA authorizes assistance to States to carryout water quality management planning. The States must pass through 40% of these funds to regional planning agencies unless the Governor, in consultation with affected parties, determines

that regional planning agency participation will not significantly assist the State in its water quality management planning efforts.

The state receives approximately \$100,000 per year in funding (no state match is required). Forty percent of the annual funding goes to the sub-state planning districts - usually ACOG (Association of Central Oklahoma Governments - Oklahoma City area) and INCOG (Indian Nation Council of Governments - Tulsa area). The remaining 60% is allocated to the Oklahoma Water Resources Board (OWRB) for planning purposes. The funding period for this program is approximately three (3) years.

FY 05 604(b) Program

Project 1 – 2006 – 2007 Oklahoma Water Quality Standards Triennial Revision - OWRB
 \$60,000

The objective of this project will be to meet the requirements of a triennial revision outlined in the Clean Water Act, Code of Federal Regulations, Oklahoma Administrative Procedures Act, and other applicable statutes and rules governing how water quality standards are revised and submitted. An additional objective of this project is to exceed the federal and state requirements for public participation and review of the standards with the informal public participation traditionally implemented by the OWRB prior to the required formal steps.

Project 2 – Lower Bird Creek Bacterial – INCOG \$20,000

The objective of this project is to provide resources for the INCOG to conduct chemical monitoring for bacterial source tracking concurrently with FY 04 104(b)(3) study of bacteria sources and TMDL development in the lower Bird Creek watershed.

Project 3 – Impact of Domestic Septic Tanks on Groundwater in Central Oklahoma–ACOG \$20,000

The objectives of this project are to locate areas of the Garber, Willington, Hennessey and Duncan Formations which are susceptible to nitrate loadings and to evaluate the impacts of septic systems in higher-density lot sizes.

Grant Expenditures October 1, 2004 through September 30, 2005

Table 2 shows the expenditure of Clean Water Act funds between October 1, 2004 and September 30, 2005. The expenditures were for activities completed in SFY 2005 and funded through current and previously awarded grant programs. Funds are distributed on a reimbursement basis as detailed in the Formal Agreement between EPA and OSE.

Table 2. SFY 2005 Clean Water Act Expenditures

	Association of Central Oklahoma Governments	Indian Nations Council of Governments	Oklahoma Conservation Commission	Oklahoma Corporation Commission	Oklahoma Department of Agriculture, Food, and Forestry	Oklahoma Department of Environmental Quality	Oklahoma Water Resources Board	Oklahoma State University	Oklahoma Scenic Rivers Commission	Office of the Secretary of the Environment
104(b)(3) Program-TMDL		\$123,627					\$5,080			
104(b)(3) Program-WQCA		\$59,675	\$55,207	\$118		\$57,201	\$153,047			\$3,651
104(b)(3) Program-Wetlands		\$10,399	\$106,901		\$2,663		\$50,570	\$47,824	\$2,599	\$897
106 Program					\$126,104	\$3,324,963				\$173,746
319(h) Nonpoint Source Program			\$2,833,677		\$397	\$14,360				\$97,574
604(b) Water Quality Management Program	\$36,929	\$17,156					\$55,697			
TOTAL Expenditures	\$36,929	\$210,857	\$2,995,785	\$118	\$129,164	\$3,396,524	\$264,394	\$47,824	\$2,599	\$275,868

Disbursement of Federal Funds Pursuant to the Federal Water Pollution Control Act

2004 Report

(per Senate Bill 150, 1st Session of the 49th Legislature, 2003)



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1 November 2004

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Introduction

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Ten years after passage of the Environmental Quality Act of 1993, the Oklahoma Legislature sought minor changes to this oversight responsibility through passage of Senate Bill 150 (2003 Session). In addition to seeking increased coordination through consultation with the Secretary of Agriculture, the Legislature added the requirement of an annual report to heighten accountability and increase understanding of how Clean Water Act funds are disbursed throughout the state.

Funding is delivered to Oklahoma's Secretary of the Environment from the U.S. Environmental Protection Agency ("EPA") through five distinct grant programs that are defined by the section of the Clean Water Act in which they are established: Section 104(b)(3), Section 104(b)(3) Wetlands, Section 106, Section 319, and Section 604(b). Each grant program has its own priorities, guidance, and funding cycles. This report summarizes the Clean Water Act grant program funding received by the Secretary of the Environment during the 2004 Federal fiscal year October 1, 2003 – September 30, 2004 (see Table 1 for overview).

Table 1. Clean Water Act Funding to Subrecipients (Federal Dollars for Federal fiscal Year 2004).

	Association of Central Oklahoma Governments	Indian Nations Council of Governments	Oklahoma Conservation Commission	Oklahoma Corporation Commission	Oklahoma Department of Agriculture, Food and Forestry	Oklahoma Department of Environmental Quality	Oklahoma Water Resources Board
FY 03 104(b)(3) Water Quality Cooperative Agreement		\$57,750					\$319,412
FY 03 104(b)(3) Supplemental TMDL				\$130,757			\$117,198
FY 04 104(b)(3) Supplemental TMDL		\$98,500				\$99,528	\$55,730
FY 04 104(b)(3) Probabilistic Sampling							\$120,658
FY 03 104(b)(3) Wetlands Protection			\$168,058				\$47,122
FY 04 104(b)(3) Wetlands Protection		\$87,000					\$127,928
FY 05/06 106 Program*					\$43,750	\$569,062	
FY 03 319(h) NPS Program			\$3,577,000				
FY 04 604(b) Water Quality Management Program	\$21,631	\$21,631					\$64,891
TOTAL FUNDING	\$21,631	\$264,881	\$7,267,858	\$130,757	\$43,750	\$668,590*	\$852,939

**Additional funding (\$3,978,728) for the FY 05/06 106 Program is expected by January 2005*

Section §104(b)(3) Program

Section 104(b)(3) authorizes funding to State agencies, Tribes, other public or nonprofit private agencies, institutions, organizations and individuals to conduct and promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys and studies relating to causes, effects, extent, prevention, reduction and elimination of pollution. Funding is available annually through both EPA Headquarters and EPA Region 6 and usually requires a 5% match. The funding is normally competitive on a regional basis. However, at times, EPA may offer provisional funding to states or regions for a specific purpose.

FY 03 §104(b)(3) Water Quality Cooperative Agreement

Project 1 – Level 3 Ecoregion Refinement and level 4 Ecoregion Delineation for Oklahoma -- OWRB..... \$189,293

The objective of this project is to refine the level 3 ecoregions and to define level 4 ecoregions for Oklahoma. This refinement will improve the ability of state and federal agencies to assess and management aquatic and terrestrial resources.

Project 2 – Development of a Stream/River Probabilistic Sampling Network for the State of Oklahoma – OWRB..... \$130,119

The objective of this project is to develop a probabilistic monitoring network in Oklahoma. The project will sample 2 of the 11 sub-basins in the state. It will assess the general health of the waters in those 2 sub-basins through the comparison of data to known reference conditions and water quality standards. OWRB will then determine the logistical and monetary feasibility of conducting the study throughout the state.

Project 3 – Wastewater Homeland Security Assessment for INCOG Area – INCOG \$57,750

This program will evaluate existing wastewater systems in the INCOG area and identify options for improving system security. Outcomes of this program are expected to lead to reduce risk in handling and storage of hazardous chemicals at POTWs, improvements in overall POTW site security and reduce risk of potential terrorist actions including theft or release of dangerous chemicals and sabotage of critical operations that could result in environmental damage or injury to public health and safety.

FY 02 §104(b)(3) Supplemental TMDL Funding

Project 1 - Impairment Source Location, Effects Determination and TMDL/BMP/Cleanup Action Planning – Corp Comm/OCC \$130,757

The purpose of this project is to identify the extent of salinity impacted and impaired streams and tributaries and of contributing groundwater plumes in the Washita River Watershed.

Project 2 – Monitoring in Support of TMDL Development in the Upper Kiamichi and Upper Little River Watersheds – OWRB..... \$117,198

The objective of this project is to review available historical data and analyze trends related to seasonality, rainfall, sediment and flows. Through the continuous monitoring and trend analysis the project will determine the cause(s) of low pH, low DO values, and metal concentrations within the Upper Kiamichi and Upper Little River Watersheds. Biological data will also be collected on all segments to determine the health and impairment status of the stream segments within the watershed.

FY 04 §104(b)(3) Supplemental Funds for TMDL

Project 1 – Turbidity TMDL Development - ODEQ..... \$99,528

This project is intended to rapidly develop TMDLs for waterbodies impaired by turbidity using the load-duration curve method. Specifically, this project targets waterbodies for which good water quality data is available, excellent daily flow data is available and priority on the 2002 303(d) list is high.

Project 2 – Revisions, Corrections or Updates to Historic Mineral Concentrations Used in Determining Ambient Chloride, Sulfate or Total Dissolved Solids (TDS) Concentrations for Oklahoma Stream Segments – OWRB..... \$55,730

This project aims to review the source data and correct as necessary the listings of historic mineral data currently housed in Oklahoma's Water Quality Standards. OWRB will address the published EPA high priority areas of "indicators of ecological condition" as well as those of the TMDL program. This project will also determine historic ambient mineral water chemistry for the greatest number of stream segments possible. Correction of possibly erroneous historic values will prevent unnecessary TMDLS and allow the state to direct resources towards more urgent areas.

Project 3 – Development of TMDLs for Bird Creek – Pathogens, Lead and Turbidity – INCOG..... \$98,500

Two high priority TMDLs (for lead and pathogens) and Phase I of a TMDL for turbidity will be completed under this grant for Bird Creek.

FY 04 §104(b)(3) Probabilistic Sampling Program

Project 1 – Implementation of Randomized Sampling at the Level II Ecoregion Scale - OWRB..... \$99,528

This is a national study to gain an understanding of the health of our nation's waters based on the level II ecoregion scale. This project will collect biological data from several watersheds within Oklahoma from which EPA and the State will be able to draw inferences on stream health. Comparable, scientifically defensible data will be collected and findings will be reported to US EPA, Congress and other concerned parties.

Section §104(b)(3) Wetlands Program

Section 104(b)(3) Wetlands authorizes funding for the development and implementation of activities to protect state wetlands. The goal of the program is to build the capacity of all levels of government to develop and implement effective, comprehensive programs for wetland protection and management. This grant program is competitive on a regional basis and requires a 25% match. A funding level of approximately \$1.2 million is available per year at the regional level.

FY 03 §104(b)(3) Wetlands Protection Workplan

Project 1 – National Wetland Inventory Map Digitization – OCC/OWRB..... \$125,000

The goal of this project is to create an Oklahoma specific interactive wetland mapping system, which will provide increased analytical opportunities for the public as well as the private sectors.

Project 2 – Stream Corridor Riparian Area Restoration – OCC..... \$38,430

The goal of this project is to restore and enhance over one-half mile of forested riparian wetlands on a tributary of the Little River. This project will also provide educational opportunities to the City of Norman in terms of planning and development as well as focusing attention on the importance of riparian areas for environmental and economic benefits.

Project 3 – McCurtain County Oxbow Enhancement and Outdoor Learning Center – OCC..... \$51,750

The goal of this project is to restore and enhance a wetland area which is owned by the Little River Conservation District. The area will be developed into an outdoor learning center for use that can then be utilized by the residents of McCurtain County.

FY 04 §104(b)(3) Wetlands Protection Workplan

Project 1 – Development of a Use Attainability Analysis Procedure for Oklahoma’s Wetlands - OWRB..... \$127,928

The objective of this project is to establish a preliminary Use Attainability Analysis (UAA) protocol that will determine, through examination of field and laboratory parameters and/or historic data, which of the traditional Clean Water Act §101(a)(2) uses may be appropriate and attainable for Oklahoma wetlands.

Project 2 – Establishing a Stream Team for the Tulsa Metropolitan Area - INCOG \$87,000

This project will establish a Stream Team for the Tulsa Metropolitan Area. The INCOG Stream Team will consist of a consortium of local, State, and Federal agencies willing to provide resources to developers and local governments (cities and counties) for the purpose of protecting and enhancing watersheds exposed to urbanization.

Section §106 Program

Section 106 of the Clean Water Act authorizes assistance to the State in administering programs for the prevention, reduction, and elimination of water pollution including programs for the development and implementation of groundwater protection strategies. The state receives approximately \$2,147,700 for surface water and groundwater activities. The state is required to set forth a minimum level of effort towards the §106 program of \$257,655. All base surface and groundwater activities are included in the FOCUS document, which is part of DEQ’s Performance Partnership Grant. By including the activities in the FOCUS document, EPA allows DEQ flexibility and the ability to cross fund programs. Activities and projects under this grant program are reviewed and awarded on an item-by-item basis. The program period for the §106 grants is two years.

NOTE: In January 2005, OSE is expecting EPA to award additional base and carryover funds in the amount of \$3,978,728. Of this amount, \$1,685,863 will go towards ODEQ "core activities" listed below, and the balance will fund the 22 "carryover" projects described below. Funding for FY 2006 Core Activities will begin in July 2005.

FY 05/06 §106 Program

FY 05/06 Core Activities - ODEQ \$569,062

- Administration – The agency will monitor its finance, personnel and data processing operations. Surveys will evaluate customer satisfaction with major program activities.
- Enforcement – The agency will ensure compliance with the law through an enforcement program that will include issuing orders and assessing fines.

- Permitting – Permitting, along with rulemaking, provides the basic tool for controlling pollutant discharges. Particular emphasis will be placed on the issuance of high quality permits in a timely manner.
- Planning – The agency will implement a planning process called “FOCUS” to integrate budget, planning, personnel evaluation and reporting based on measuring for results.
- Sludge –The agency will review and respond to all sludge management plans within 60 days of receipt of all necessary information to ensure that construction is performed.
- TMDL – The agency will develop and/or review TMDL/WLA models in accordance with schedules established in the 1998 303(d) list and submit these models to EPA for approval
- Groundwater Monitoring – The agency will continue to conduct both environmental and programmatic monitoring to determine the effectiveness of its programs

FY 05/06 \$106 Workplan

Project 1 – Management and Coordination - OSE \$268,918

This project provides for maintenance of federal responsibility/accountability of funds to support all Clean Water Act programs. Additionally, the Governor has initiated, and will continue to initiate, activities for the protection of water quality through the Office of the Secretary of Environment. Staff assistance to facilitate progress in these activities will be required.

Project 2 - Statistical Analysis - ODEQ \$15,172

The purpose of this project is to 1) compile information on water quality collected by various divisions of ODEQ over the years into a single database, 2) determine if the quality of the data are sufficient to do statistical analyses of the information, 3) perform statistical analyses on the data, 4) do 305(b) reports and 5) make information available to the public.

Project 3 - Water Quality, Flow, and Sediment Monitoring Plan for Tar Creek Basin – ODEQ..... \$174,730

This project will 1) initiate flow weighted stream/mine water monitoring at established wadable sites in Tar Creek basin; 2) monitor high flow at six sites in the watershed area; 3) calculate metals loading in Tar Creek, including sediment load, and analysis of bed material and estimate the impact immediately below its confluence with the Neosho River due to dilution (and other) factors; 4) verify the quality of water flowing to Grand Lake; and 5) evaluate damage to biota at three individual monitoring sites (above, within and below mine discharge).

Project 4 – Surface-Water Quality in the Grand-Neosho River Basin, Northeastern Oklahoma – ODEQ..... \$145,515

The objectives of this project are to (1) analyze high-flow water samples from Tar Creek, the Spring River, and the Neosho River for general water properties, trace elements, and major ions; (2) utilize continuous stream flow data and water quality data from Tar Creek, Neosho River, and Spring River to estimate water and sediment quality entering Grand Lake; and (3) quantify the sediment movement and composition in Tar Creek, the Neosho River, and the Spring River under high flow conditions. The project will also enhance the current stream-monitoring network in the Picher-Miami-Commerce area. Data collected will provide information to aid Federal, State, Tribal and local officials in the remediation of the area.

Project 5 - TMDL Development for the Washita River Below Foss Reservoir Phase I (part 2) – ODEQ \$253,121

The purpose of this project is to produce a TMDL for the targeted watershed and to support Watershed Restoration Action Strategy development.

Project 6 - TMDL Monitoring – Washita River Watershed above Foss Dam – ODEQ \$100,783

The purpose of this project is to collect water quality data to verify waterbody impairment and to support TMDL development for all pollutants of concern. The data collection will be designed to assist in identifying the source(s) and extent of impairment to the waterbodies.

Project 7 - Blue River Watershed TMDL Phase I Water Quality Monitoring – ODEQ \$22,954

The purpose of this project is to collect water quality data to verify waterbody impairment and to support TMDLs for nutrients, suspended solids and noxious aquatic plants. The data collection will be designed to assist in identifying the source(s) and extent of impairment to the waterbodies

Project 8 - TMDL Development – Wister Lake – ODEQ \$93,474

The intent of this project is to develop the Total Maximum Daily Load for the pollutant of concern for Wister Lake. The data for the TMDL will be the existing data collected by various agencies.

Project 9 - Illinois River Watershed TMDL Phase I Water Quality Monitoring for Metals & Pesticides – ODEQ \$74,992

The objective of this project is to collect water quality data to verify waterbody impairment and to support a TMDL for metals and pesticides. The data collection will be designed to assist in identifying the source(s) and extent of impairment to the waterbodies.

Project 10 - TMDL Monitoring – Atoka Lake Watershed - ODEQ..... \$106,771

The objective of this project is to collect water quality data to verify waterbody impairment and to support TMDL development for all pollutants of concern. The data collection will be designed to assist in identifying the source(s) and extent of impairment to the waterbodies.

Project 11 - North Canadian River Pathogens TMDL - ODEQ..... \$18,917

The objective of this project is to collect monitoring data and develop a Total Maximum Daily Load model for pathogens in the North Canadian River. The study area encompasses the North Canadian River in the Oklahoma City metropolitan area. The Association of Central Oklahoma Governments, with guidance from the ODEQ, will conduct project activities.

Project 12 - Arkansas River Metals TMDL - ODEQ..... \$53,620

The objective of this project is to collect existing data from recent studies by INCOG, the City of Tulsa and others and develop a TMDL model for the Arkansas River. The TMDL will include all Arkansas River segments between Sand Springs and Broken Arrow, Oklahoma. All eleven metals currently listed in the Oklahoma Water Quality Standards will be modeled. Mixing zone models will be developed for metals of concern that are identified in the TMDL modeling process. The Indian Nations Council of Governments will conduct project activities with guidance from the ODEQ.

Project 13 -Bacteria TMDL Development Using GIS Toolbox.....\$117,073

This project is intended to develop bacteria TMDLs using the tools being developed by Parsons Water & Infrastructure, Inc. in cooperation with EPA Region 6 and ODEQ. The "toolbox" comprises a load duration curve tool and a GIS spreadsheet tool. The load duration curve tool estimates relative point and nonpoint source loads indication bacteria based on instream flow and concentration data. The GIS spreadsheet tool predicts nonpoint and point source loading of indicator data.

Project 14 - TMDL Monitoring on Priority 1 and Priority 2 Waters Listed on the 1998 303(d) List - ODEQ..... \$225,752

The objective of the proposed sampling initiative is to 1) establish if listed waters are currently meeting their assigned beneficial uses, 2) gather historical data (if available) to be used in Phase 1 of the TMDL process and 3) support TMDL development. The Oklahoma Water Resources Board will conduct project activities with guidance from the ODEQ.

Project 15 - Basin 6 & 7 TMDL Water Quality Monitoring - ODEQ..... \$141,675

The objective of the proposed sampling initiative is to 1) determine if listed waters are currently meeting their assigned beneficial uses, 2) gather historical data (if available) to be used in Phase 1 of the TMDL process and 3) support TMDL development. The Oklahoma Water Resources Board will conduct project activities with guidance from the ODEQ.

Project 16 - Comparison Study of Water Quality from PWS Wells and other wells in Central Oklahoma Aquifer - ODEQ..... \$157,991

ODEQ will use public water supply ("PWS") wells to characterize water quality in major aquifers. Specifically this study will compare the results of chemical analysis of PWS wells with other data from the Central Oklahoma Aquifer to evaluate the "equivalence" of information. USGS will reactivate portions of its former sampling program to establish if water quality of waters from non-PWS wells is comparable to water from PWS wells in the Central Oklahoma Aquifer. The United States Geological Survey will conduct project activities with guidance from the ODEQ.

Project 17 - Review of Monitoring and Assessment Data to Support Development of TMDL for Lake Tenkiller and Illinois River Watershed - ODEQ..... \$25,678

In conducting a Total Maximum Daily Load (TMDL) study for the Tenkiller Ferry Reservoir and its attendant watershed, the ODEQ Water Quality Division will use the Soil & Water Assessment Tool (SWAT) computer model simulation by Oklahoma State University to estimate a maximum allowable nutrient loading. Oklahoma State University will conduct project activities with guidance from the ODEQ.

Project 18 - Ground Water Monitoring FY03/04 – Continuation of Project 2 – ODEQ..... \$284,986

This project will continue the ambient groundwater monitoring program administered through the ODEQ. The primary objective of this project is to assess the quality of groundwater. In the long term, data will be analyzed for trends to identify areas where measures should be taken to preserve the beneficial uses of the groundwater. These objectives will be met by sampling a subset of Public Water Supply wells to determine current constituent levels.

Project 19 - Statewide Groundwater Quality Analysis Using GIS FY03/04 – ODEQ..... \$101,690

State agencies have been gathering data on groundwater quality for many years. ODEQ wants to use this information to develop maps showing the quality of water in the major aquifers in Oklahoma. Using new GIS software and more powerful hardware, ODEQ will be able to create layers over images of aquifers with isopleths of water quality data. These will help citizens of Oklahoma ascertain groundwater quality for every major aquifer area for many parameters.

Project 20 - Proposed Stream Gaging Program (Year 5) - ODEQ..... \$95,000

The monitoring sites listed in this proposal for funding are all located in Unified Watershed Assessment Category I watersheds. These monitoring sites are critical to TMDL development and are also essential in tracking the progress of TMDL implementation procedures. Flow data will be used to assess the total pollutant loading, and the water quality data will be used to determine the degree of impairment to the water's beneficial use(s). Where appropriate, screening and review criteria

developed for the 303(d) program will be utilized to assess impairment. The United States Geological Survey will conduct project activities with guidance from the ODEQ.

Project 21 – TMDL Contractual Funds – ODEQ \$106,095

These funds will be used for Total Maximum Daily Loads (TMDL) contractual work

Project 22 - Licensed Managed Feeding Operations Monitoring Well Sampling for 2004 – ODAFF..... \$137,500

The Oklahoma Concentrated Animal Feeding Operations Act (2 O.S. § 9-205.4(F)(3)) and its implementing regulations (OAC 35:17-3-11(e)(6) (H)) both require that the Oklahoma Department of Agriculture, Food, and Forestry (ODAFF) annually sample monitoring wells at swine Licensed Managed Feeding Operations (LMFOs). This project will allow for the collection of groundwater samples at monitoring wells of LMFOs and a review of the analyzed data for indication of possible pollution. Determining the sources of pollutants in groundwater will aid ODAFF in assessing whether LMFOs negatively affect nearby groundwater quality and what actions are necessary to address such pollution.

Section § 319(h) Nonpoint Source Program

Section 319(h) of the CWA authorizes funding to designated State agencies to implement the State's NPS management program to control nonpoint source pollution. The state receives approximately \$3,600,000 annually and is required to provide a 40% match. The funds within this grant program are tied to priorities listed within Oklahoma's Nonpoint Source Management Plan and directed by the Nonpoint Source Working Group, and the Oklahoma Conservation Commission serves as the technical lead agency for the program.

FY 03 319(h) Program

Project 1 - Coordination and Management of Oklahoma's NPS Program – OSE \$100,000

Provide support for coordination and management of the FY 03 319 (h) grant and related activities, including departmental and technical review, coordination of interagency technical review, and management and maintenance of Oklahoma's Nonpoint Source Grants Reporting and Tracking System.

Project 2 - Oklahoma Conservation Commission Implementation of the NPS Management Program October 2003- September 2004 – OCC..... \$1,147,665

The purpose of this project is to provide staff support and funding to implement Oklahoma's Comprehensive Nonpoint Source Pollution Program, including planning,

assessment, education, and implementation activities between October 1, 2003 and September 30, 2004.

Project 3 - Rotating Basin Monitoring Program (Year 4) – OCC \$767,495

The purpose of this project is to complete year 4 of the Rotating Basin Monitoring Program (RBMP). Funding will provide staff support, laboratory contracts, motor vehicle contracts, travel costs, and supplies for one year of monitoring in the six basins to be monitored as part of year 4. Monitoring will include physical, chemical, and biological sampling of sites selected by OCC Water Quality Specialists.

Project 4 – Spavinaw Creek Watershed Implementation Project – OCC..... \$1,661,840

The objective of this project is to initiate a watershed scale effort to reduce NPS loading to eliminate threats and impairments to Spavinaw Creek. In accomplishing this goal, loadings as established in the future TMDL and Water Quality Standards will eventually be met. The education, implementation, and monitoring activities outlined in this workplan are only the first step in what should be a long-term effort to achieve the objective.

Section §604(b) Water Quality Management Program

Section 604(b) of the CWA authorizes assistance to States to carryout water quality management planning. The States must pass through 40% of these funds to regional planning agencies unless the Governor, in consultation with affected parties, determines that regional planning agency participation will not significantly assist the State in its water quality management planning efforts.

The state receives approximately \$100,000 per year in funding (no state match is required). Forty percent of the annual funding goes to the sub-state planning districts - usually ACOG (Association of Central Oklahoma Governments - Oklahoma City area) and INCOG (Indian Nation Council of Governments - Tulsa area). The remaining 60% is allocated to the Oklahoma Water Resources Board (OWRB) for planning purposes.

FY 04 604(b) Program

Project 1 – Revision of Oklahoma’s Water Quality Standards and Associated Implementation Documents – OWRB

..... \$64,891

It is the objective of this project to continue with the development and promulgation of beneficial uses, water quality criteria, anti-degradation limitations and implementation language as is necessary to protect the water resources of the state of Oklahoma. These activities will include the state-mandated review, and revision as necessary, of Water Quality Standards Implementation Plans (WQSIPs) for all state environmental

agencies. Through the public participation element of this process, opinions and input from individuals and potentially affected entities outside of the regulatory arena will be considered.

Project 2 – Enhancing INCOG’s Water Quality– INCOG..... \$21,631

The objective of this project is to provide resources for the INCOG Areawide Water Quality Management Planning Program to enhance and manage activities used for water quality planning and participate in State water quality programs on behalf of entities in the INCOG area regarding water quality issues.

Project 3 – Salt Water Contamination Mapping in Oklahoma County – Phase 2– ACOG \$21,631

The objective of this workplan proposal is to map salt-water contamination sites in the ACOG area that pose threats to public and domestic water supplies.

**Strategy for Restoration and Protection of Scenic River Watersheds
Through Nutrient Management of Agricultural Activities**

ODAFF January, 2006

All of the agricultural related activities, except two nurseries, under the Oklahoma Department of Agriculture, Food, and Forestry's (ODAFF) jurisdiction do not discharge directly to the Scenic River watersheds, which include the Upper Illinois River watershed with Upper Illinois River, Flint Creek and Barren Fork in stream segment 121700, Lee Creek and Little Lee Creek in segment 220200, and Upper Mountain Fork River in segment 410210. However, land application of poultry litter or other agricultural waste above the agronomic rates or applying on land already saturated with nutrients may become a non-point source contributing to the degradation of the water quality of the Scenic Rivers. The irrigation tail-water return flow from plant nurseries in the Illinois River watershed could also contribute to the degradation of the water quality of the scenic rivers. Evaluation of the impact of these potential sources is necessary to establish a proper strategy to protect the scenic rivers and their watersheds.

I- Tasks Performed by ODAFF:

(1) For Poultry Operations:

- Assisted growers in developing Animal Waste/Nutrient Management Plans. Currently more than 80% of poultry operations have submitted copies of these plans to ODAFF. Two ODAFF contract soil scientists have written 382 Animal Waste Management Plans for poultry operations.
- Conducted inspections of all poultry operations located in the watersheds. 343 inspections were performed by ODAFF poultry inspectors from July 1, 2005 to December 31, 2005.
- 1,790 technical assistances were provided in fiscal year 2004 to the poultry operations.
- From August 1, 2004 to December 31, 2005, ODAFF performed 44 enforcement actions against violators of poultry statutes and rules located in the watersheds.
- Coordinate with intra and interstate agencies/entities in developing Comprehensive Nutrient Management Plans (CNMP) for the point and non-point sources located in the impaired watersheds. Agricultural Environmental Management Services (AEMS) Division of ODAFF has recently finalized a cooperative agreement with Natural Resources Conservative Service (NRCS) of USDA to develop CNMPs for those operations applying for Environmental Quality Incentives Program (EQIP) fund for improving their systems.
- Continue to pursue cost-effective alternative methods of disposal of excess litter through ODAFF Market Development Division and Office of the Secretary of the Environment.
- Continue to assist growers in developing Animal Waste Management Plans (AWMP) and/or Nutrient Management Plans (NMP).
- Accelerate inspection and enforcement actions against violators of the Registered Poultry Feeding Operations Act and the permanent rules, and those

EXHIBIT

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who do not comply with requirements of Animal Waste/Nutrient Management Plans.

(2) For Nursery Operations:

- Nursery operations were monitored monthly for nitrate-nitrogen, total-phosphorous and pesticides from 1989 to 2001. Results have been published in *The Curtis Report 1989 –1992*, 1993, 1994, 1995, 1996, 1997
- Signed voluntary compliance agreements with nursery operations to reduce nutrient loading.
- Notified nurseries when they were out of compliance.

II- Evaluation of the Impact of Agricultural Sources Located in the Scenic River Watersheds:

- Poultry Farms: There are 111 poultry operations, more than half of them raising broilers, registered with ODAFF, consisting of 92 operations in the Upper Illinois River (UIR) watershed encompassing parts of Adair County, Cherokee County and Delaware County; 3 operations in the Lee Creek/Little Lee Creek (LLC) watershed encompassing parts of Adair, Leflore and Sequoyah Counties; and 16 operations in the Upper Mountain Fork (UMF) watershed encompassing part of McCurtain County. These operations manage a total of 462 houses with 429 houses and 8,001,330 birds in UIR watershed, 8 houses and 140,800 birds in LLC watershed, and 25 houses and 301,400 birds in UMF watershed. The trend is: number of operations as well as number of poultry houses decreased; however, houses are being built larger, resulting in more number of bird spaces from 8,309,510 in 2004 to 8,443,530 this year, approximately 1.6% increase. The number of birds in UIR watershed increased approximately 2.9 %, from 7,766,710 in 2004 to 8,001,330 this year. While the number of birds in LLC and UMF watersheds decreased 23% and 16% respectively.
- Amount of Litter Produced and Nutrient Generated by Poultry Farms: More than half of the poultry operations in the watersheds raise broilers, and broilers normally generate more litter and nutrient than pullets, layers and turkeys. In the context of this report, the total amounts of litter and nutrients produced for all operations are estimated based on broiler's production rate of 18 lbs of litter per year per space, and its nutrient values of 46 lbs of total Nitrogen and 53 lbs of P₂O₅ per ton of litter.⁽¹⁾ The estimated amount of litter and nutrients generated in the different watersheds per year are as follows:

<u>Watersheds</u>	<u>Litter (ton)</u>	<u>Total N (ton)</u>	<u>P₂O₅ (ton)</u>	<u>Phosphorus P (ton)</u>
UIR	72,012	1,656	1,908	833
LLC	1,267	29	34	15
UMF	2,713	63	72	31
Total:	75,992	1,748	2,014	879

⁽¹⁾ Table 11: Estimated Solid Manure Characteristics, Manure Characteristics, Manure Management System Series, Midwest Plan Service (MWPS)-18, Section 1.

Compared to last year, there is a slight increase (about 1.6 %) in litter produced, from 74,785 tons to 75,992 tons, resulting in a small increase of P_2O_5 generated: from 1,981 tons in 2004 to 2,014 tons this year.

The above estimation based on the actual bird space is more conservative than the traditional method of estimating based on a litter production rate of 125 tons per year per house. Since the houses are larger, the number of chicken spaces per house increase as well as the amount of litter generated. The total amount of manure produced per the latter method would be 57,750 tons (53,625 tons in UIR, 1,000 tons in LLC and 3,125 tons in UMF). Thus, the former method is more appropriate in evaluating the impact of poultry industries in the watersheds. It is also noted that the OSU (Oklahoma State University) Extension Facts F-2228 "*Fertilizer Nutrients in Animal Manure*" specified an average content of P_2O_5 of manure in Oklahoma of 61lbs per ton of manure for broiler. Based on this phosphorus content and the latter method for estimating manure produced of 57,750 tons, the total amount of P_2O_5 generated in the watersheds would be 1,761 tons, compared to 2,014 tons per the former method as presented in the above table. The difference between the two methods is within 12.5 % of each other.

The contents of Nitrogen (N) and Phosphorus (P) under the form of P_2O_5 in poultry litter are almost the same ratio: 1:1. However, litter is normally applied only onto the soil surface, and a considerable amount of nitrogen in the form of Ammonium (NH_4) will be converted to Ammonia (NH_3) and released to the air. Thus, the total N available for plant use is reduced. Meanwhile the demands of N for most crops are much higher than Phosphorus. To satisfy crop growth based on N need, litter would have to be applied at a higher rate, resulting in the build-up of unused Phosphorus in the soil. Run-off and erosion may carry the extra Phosphorus to the nearby streams. Several Scenic Rivers, especially the Illinois River, were affected by the presence of a high level of Phosphorus. Controlling Phosphorus will be very critical in the restoration and protection of these rivers.

- Soil Test Phosphorus (STP): ODAFF inspectors collected soil samples for STP at poultry operations located in several counties in the Scenic River watersheds in Summer and Fall of 2002. The results indicated that more than 39% of samples collected exceeded the STP of 250, the threshold above which only half of normal phosphorus loading rate is recommended to apply. Code 590 of the Natural Resources Conservation Service (NRCS) on Nutrient Management classified as Moderate rating for the soil with STP between 66 and 250, and recommended a full rate of waste application of 200 lbs of P_2O_5 , which is equivalent to 3.7 tons of litter, or less per acre of land with slope less than 8% and soil more than 20" deep. For High rating of soil with STP between 250 and 400, NRCS recommended half of the application rate for phosphorus.

The results of samples collected by ODAFF inspectors also indicated that more than 77% of the samples exceeded the STP of 120 and more than 33% of the samples exceeded the STP of 300.

- Impact Evaluation of Land Application of Poultry Litter on the Watersheds:
 Since the above samples do not cover all lands located in the watersheds, that are either being used as land application sites or that may be available for future land application sites, the extra phosphorus loading, above and beyond the soil capacity for agronomic use, could not be accurately estimated. On the other hand, the limited data of STPs for lands currently being used for litter application in the watersheds, which have been submitted by Poultry Litter Applicators in their annual report for the year 2004 to the ODAFF office, showed a better picture with approximately 25.9% of samples exceeding STP 120, 5.6% of the samples exceeding the STP of 250, and 3.2% of samples exceeding STP 300. These undoubtedly appear to be more positive. Based on a threshold of STP of 250 and the results of soil tests collected by ODAFF inspectors, we assumed that 39% of lands with STP of 250 located in the watersheds that are being used for litter application are at capacity for P loading. Similarly, based on STP thresholds of 120 and 300, and ODAFF inspectors soil test results the percentage of land at capacity for P loading would be 77% and 33% respectively. As a conservative measure for pollution prevention at the source, it is estimated that the amounts of extra poultry litter presented below, based on different STP thresholds of 120, 250 and 300, should either be transferred out of each watershed or be applied onto other available lands in the watersheds:

<u>Watersheds</u>	<u>Extra Litter (STP 120)</u>	<u>Extra Litter (STP 250)</u>	<u>Extra Litter (STP 300)</u>
UIR	55,449 tons	28,085 tons	23,764 tons
LLC	976 tons	494 tons	418 tons
UMF	2,089 tons	1,058 tons	895 tons
Total	58,514 tons	29,637 tons	25,077 tons

The percentage of lands at capacity for P loading and the estimated amount of extra litter above will be revised once all STPs data are submitted to and verified by ODAFF and/or additional STP samples are collected by ODAFF inspectors. These values will also be reevaluated based on the updated STP thresholds once revised or finalized by NRCS and/or OSU.

Depending on the terrain and slopes of the sites, the proximity to the Scenic Rivers and the nature and conditions of the intermediate zones between the sites and the waters, the impact could be significant or negligible. Therefore, to accurately estimate the impact of agricultural activities on water quality of Scenic Rivers, especially of the poultry operations in the watersheds, in-stream monitoring stations to measure nutrient levels up and downstream of the operations, above and below the operations and at the state line for

monitoring of interstate phosphorus contributions should be established. Monitoring data will also help in reevaluating the effectiveness of pollution prevention measures applied in the watershed and the appropriateness of currently recommended STP threshold value. In monitoring nutrient levels at the edge of the operation fields or land application areas, site-specific STP threshold could be developed for each watershed and put in use for stricter control of Phosphorus loading in the watershed.

- Status of Nursery Operations: There are two (2) large containerized plant nurseries along the Illinois River that have had irrigation tail-water return flow enter the river. These operations were monitored monthly for nitrate-nitrogen, total-phosphorous and pesticides from 1989 to 2001. One operation became totally contained in 1998 and only has runoff leaving their property during large rainfall events. These nurseries signed voluntary compliance agreements with ODAFF to reduce their yearly average nitrate level in their discharge from a high of 27.99 mg/l NO₃-N in 1989 to 10 mg/l in 1996. They also agreed to reduce the Phosphorus (total) level down to 1 mg/l.

III- Setting Goals for Reducing the Impact:

- Phase 1: 50% reduction of potential agricultural sources, to be achieved in 5 years.
- Phase 2: 100% of potential agricultural sources, to be achieved in 10 years.

Depending on resources available, the results of further soil sampling and the assessment of the level of impact contributed by agricultural sources on the watersheds, the above goals could be reevaluated in the future.

IV- Strategy to Achieve the Goals:

(1) For Poultry operations:

- Evaluate the accuracy of STP data of lands located in the watersheds as submitted by poultry applicators through required annual reports to ODAFF; spot check the STPs, by conducting on site inspection and soil sample collection. Notify the applicators of the sites with currently more than an STP of 250 and do not allow them to apply additional litter on these lands.
- Coordinate with growers in locating available lands in the watersheds with STP less than 250 for future land application of litter. This will help determine the amount of litter, if any, to be transferred out of the basins/watersheds.
- Measure in-stream P levels upstream and downstream of the poultry operations and/or litter land application sites by setting up monitoring stations in the Scenic Rivers. Get access to and evaluate currently available OWRB BUMP or USGS data on nutrient levels in the watersheds.
- Evaluate the above data to determine effectiveness of land application restrictions, and the appropriateness of the recommended STP threshold value.
- Select a typical litter land application site located within ¼ miles of a scenic river, coordinate with grower and/or NRCS to monitor phosphorus levels in the runoff water within 100 feet outside of the perimeter of the land

application field after storm events, and to measure the phosphorus content of the soil of the field to determine the phosphorus amount leaving the field, if any, in order to develop or adjust the STP threshold specific for the watershed or sub-watershed.

(2) For Nursery Operations:

- Conduct an inventory of fertilizer and pesticide operations in the scenic river watersheds.
- Monitor the irrigation return flow of the one remaining nursery to maintain compliance with the voluntary compliance agreements and the new phosphorus standard.
- Monitor the river upstream and downstream from the nursery operations to determine if impact to the river is occurring.
- Assist operations with developing management plans to reduce nutrient loading.
- Involve pesticide manufacturers if pesticides are detected in any irrigation tail-water due to normal label use.
- Work toward total retention and recycling of the irrigation water with the use of state and federal assistance within 10 years.

**Oklahoma Department of Agriculture,
Food, and Forestry (ODAFF)**

**Actions Relevant To The
Scenic Rivers Act and Water Quality Standards**

ODAFF May, 2005

Evaluation of the Impact of Agricultural Sources Located in the Scenic River Watersheds:

- **Poultry Farms:** There are 111 poultry operations, more than half of them raising broilers, registered with ODAFF, consisting of 92 operations in the Upper Illinois River (UIR) watershed encompassing parts of Adair County, Cherokee County and Delaware County; 3 operations in the Lee Creek/Little Lee Creek (LLC) watershed encompassing parts of Adair, Leflore and Sequoyah Counties; and 16 operations in the Upper Mountain Fork (UMF) watershed encompassing part of McCurtain County. These operations manage a total of 462 houses with 429 houses and 8,001,330 birds in UIR watershed, 8 houses and 140,800 birds in LLC watershed, and 25 houses and 301,400 birds in UMF watershed. The trend is: number of operations as well as number of poultry houses decreased; however, houses are being built larger, resulting in more number of bird spaces from 8,309,510 in 2004 to 8,443,530 this year, approximately 1.6% increase. The number of birds in UIR watershed increased approximately 2.9 %, from 7,766,710 in 2004 to 8,001,330 this year. While the number of birds in LLC and UMF watersheds decreased 23% and 16% respectively.
- **Amount of Litter Produced and Nutrient Generated by Poultry Farms:** More than half of the poultry operations in the watersheds raise broilers, and broilers normally generate more litter and nutrient than pullets, layers and turkeys. In the context of this report, the total amounts of litter and nutrients produced for all operations are estimated based on broiler's production rate of 18 lbs of litter per year per space, and its nutrient values of 46 lbs of total Nitrogen and 53 lbs of P₂O₅ per ton of litter.⁽¹⁾ The estimated amount of litter and nutrients generated in the different watersheds per year are as follows:

<u>Watersheds</u>	<u>Litter (ton)</u>	<u>Total N (ton)</u>	<u>P₂O₅ (ton)</u>	<u>Phosphorus P (ton)</u>
UIR	72,012	1,656	1,908	833
LLC	1,267	29	34	15
UMF	2,713	63	72	31
Total:	75,992	1,748	2,014	879

⁽¹⁾Table 11: Estimated Solid Manure Characteristics, Manure Characteristics, Manure Management System Series, Midwest Plan Service (MWPS)-18, Section 1.

Compared to last year, there is a slight increase (about 1.6 %) in litter produced, from 74,785 tons to 75,992 tons, resulting in a small increase of P₂O₅ generated: from 1,981 tons in 2004 to 2,014 tons this year.

The above estimation based on the actual bird space is more conservative than the traditional method of estimating based on a litter production rate of 125 tons per year per house. Since the houses are larger, the number of chicken spaces per house

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increase as well as the amount of litter generated. The total amount of manure produced per the latter method would be 57,750 tons (53,625 tons in UIR, 1,000 tons in LLC and 3,125 tons in UMF). Thus, the former method is more appropriate in evaluating the impact of poultry industries in the watersheds. It is also noted that the OSU (Oklahoma State University) Extension Facts F-2228 "*Fertilizer Nutrients in Animal Manure*" specified an average content of P_2O_5 of manure in Oklahoma of 61lbs per ton of manure for broiler. Based on this phosphorus content and the latter method for estimating manure produced of 57,750 tons, the total amount of P_2O_5 generated in the watersheds would be 1,761 tons, compared to 2,014 tons per the former method as presented in the above table. The difference between the two methods is within 12.5 % of each other.

- **Soil Test Phosphorus (STP):** ODAFF inspectors collected 106 soil samples at 69 poultry operations located in several counties in the Scenic River watersheds in the Summer and Fall of 2002. The lab results indicated the following:

➤ 16 out of 106 samples (15.09%) had phosphorus levels above 400.

Strategies and Goals:

(1) For Poultry operations:

- Evaluate the accuracy of STP data of lands located in the watersheds as submitted by poultry applicators through required annual reports to ODAFF; spot check the STPs, by conducting on site inspection and soil sample collection. Notify the applicators of the sites with currently more than an STP of 250 and do not allow them to apply additional litter on these lands.
- Coordinate with growers in locating available lands in the watersheds with STP less than 250 for future land application of litter. This will help determine the amount of litter, if any, to be transferred out of the basins/watersheds.
- Measure in-stream P levels upstream and downstream of the poultry operations and/or litter land application sites by setting up monitoring stations in the Scenic Rivers. Get access to and evaluate currently available OWRB BUMP or USGS data on nutrient levels in the watersheds.
- Evaluate the above data to determine effectiveness of land application restrictions, and the appropriateness of the recommended STP threshold value.
- Select a typical litter land application site located within ¼ miles of a scenic river, coordinate with grower and/or NRCS to monitor phosphorus levels in the runoff water within 100 feet outside of the perimeter of the land application field after storm events, and to measure the phosphorus content of the soil of the field to determine the phosphorus amount leaving the field, if any, in order to develop or adjust the STP threshold specific for the watershed or sub-watershed.

(2) For Nursery Operations:

There are two (2) large containerized plant nurseries along the Illinois River that have had irrigation tail-water return flow enter the river. These operations were monitored monthly for nitrate-nitrogen, total-phosphorous and pesticides from 1989 to 2001. One operation became totally contained in 1998 and only has runoff leaving their property during large rainfall events. These nurseries signed voluntary compliance agreements with ODAFF to reduce their yearly

average nitrate level in their discharge from a high of 27.99 mg/l NO₃-N in 1989 to 10 mg/l in 1996. They also agreed to reduce the Phosphorus (total) level down to 1 mg/l.

- Conduct an inventory of fertilizer and pesticide operations in the scenic river watersheds.
- Monitor the irrigation return flow of the one remaining nursery to maintain compliance with the voluntary compliance agreements and the new phosphorus standard.
- Monitor the river upstream and downstream from the nursery operations to determine if impact to the river is occurring.
- Assist operations with developing management plans to reduce nutrient loading.
- Involve pesticide manufacturers if pesticides are detected in any irrigation tail-water due to normal label use.
- Work toward total retention and recycling of the irrigation water with the use of state and federal assistance within 10 years.

**Strategy for Restoration and Protection of Scenic River Watersheds
Through Nutrient Management of Agricultural Activities**

By ODAFF 12/29/03

All of the agricultural related activities, except two nurseries, under the Oklahoma Department of Agriculture, Food, and Forestry's (ODAFF) jurisdiction, do not discharge directly to the Scenic River watersheds, which include the Upper Illinois River watershed with Upper Illinois River, Flint Creek and Barren Fork in stream segment 121700, Lee Creek and Little Lee Creek in segment 220200, and Upper Mountain Fork River in segment 410210. However, land application of poultry litter or other agricultural waste above the agronomic rates or applying on land already saturated with nutrients may become a non-point source contributing to the degradation of the water quality of the Scenic Rivers. The irrigation tailwater return flow from two plant nurseries in the Illinois River watershed could also contribute to the degradation of the water quality of the scenic rivers. Evaluation of the impact of these potential sources is necessary to establish a proper strategy to protect the scenic rivers and their watersheds.

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I- Evaluation of the Impact of Agricultural Sources Located in the Scenic River Watersheds:

- **Poultry Farms:** There are 115 poultry operations, more than half of them raising broilers, registered with ODAFF, consisting of 93 operations in the Upper Illinois River (UIR) watershed encompassing parts of Adair, Cherokee and Delaware Counties; 3 operations in the Lee Creek/Little Lee Creek (LLC) watershed encompassing parts of Adair and Sequoyah Counties; and 19 operations in the Upper Mountain Fork (UMF) watershed encompassing part of LeFlore and McCurtain Counties. These operations manage a total of 516 houses with 479 houses and 8,661,430 birds in UIR watershed, 8 houses and 140,800 birds in LLC watershed, and 29 houses and 346,900 birds in UMF watershed. Comparing to last year (2002) activities, the total number of poultry operations in the watersheds this year decreases about 8%; however, the number of houses increases 4.6 %, and number of birds increases 10% (from 8,309,510 to 9,149,130 birds). The general trend shows that the operations become larger; with more houses per each operation, and more birds in each house.
- **Amount of Litter Produced and Nutrient Generated by Poultry Farms:** More than half of the poultry operations in the watersheds raise broilers, and broilers normally generate more litter and nutrient than pullets, layers and turkeys. In the context of this report, the total amounts of litter and nutrients produced for all operations are estimated based on broiler's production rate of 18 lbs of litter per year per space, and its nutrient values of 46 lbs of total Nitrogen and 53 lbs of P_2O_5 per ton of litter⁽¹⁾. The estimated amounts of litter and nutrients generated in the different watersheds on an annual basis are summarized in the table 1 below. It indicates that the total amounts of litter as well of nutrients generated in the watersheds increase about 10% compared to

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those of last year. The increase is 11.5% in the UIR watershed, while they stay about the same in the LLC and UMF watersheds.

Table1: Amounts of Litter and Nutrient Generated in the Watersheds ⁽¹⁾

<u>Watersheds</u>	<u>Litter (ton)</u>	<u>Total N (ton)</u>	<u>P₂O₅ (ton)</u>	<u>Phosphorus P (ton)</u>
UIR	77,953	1,793	2,066	902
LLC	1,267	29	33	15
UMF	3,122	72	83	36
Total:	82,342	1,894	2,182	953

⁽¹⁾Table 11: Estimated Solid Manure Characteristics, Manure Characteristics, Manure Management System Series, Midwest Plan Service (MWPS)-18, Section 1.

The above estimation based on the actual bird space is more conservative than the traditional method of estimating based on a manure production rate of 125 tons per year per house. The total amount of manure produced per the latter method would be 64,500 tons (59,875 tons in UIR, 1000 tons in LLC and 3625 tons in UMF). Thus, the former method is more appropriate in the evaluation of the impact of poultry industries in the watersheds. It is also noted that the OSU (Oklahoma State University) Extension Facts F-2228 "*Fertilizer Nutrients in Animal Manure*" specified an average content of P₂O₅ of manure in Oklahoma of 61lbs per ton of manure for broiler. Based on this phosphorus content and the latter method for estimating manure produced of 64,500 tons, the total amount of P₂O₅ generated in the watersheds would be 1967.25 tons, compared to 2182 tons per the former method as presented in the above table. The difference between the two methods is within 10.0 % of each other.

The contents of Nitrogen (N) and Phosphorus (P) under the form of P₂O₅ in poultry litter are almost the same ratio: 1:1. However, litter is normally applied only onto the soil surface, and a considerable amount of nitrogen in the form of Ammonium (NH₄) will be converted to Ammonia (NH₃) and released to the air. Thus, the total N available for plant use is reduced. Meanwhile the demands of N for most crops are much higher than Phosphorus. To satisfy crop growth based on N need, litter would have to be applied at a higher rate, resulting in the build-up of unused Phosphorus in the soil. Run-off and erosion may carry the extra Phosphorus to the nearby streams. Several Scenic Rivers, especially the Illinois River, were affected by the presence of a high level of Phosphorus. Controlling Phosphorus will be very critical in the restoration and protection of these rivers.

- Soil Test Phosphorus (STP): ODAFF inspectors collected soil samples for STP at poultry operations located in several counties in or adjacent to the Scenic River watersheds in the Summer and Fall of 2002. The results indicated that more than 39% of samples collected exceeded the STP of 250, the threshold above which only half of normal phosphorus loading rate is

recommended to apply. Code 590 of the Natural Resources Conservation Service (NRCS) on Nutrient Management classified as Moderate rating for the soil with STP between 66 and 250, and recommended a full rate of waste application of 200 lbs of P_2O_5 , which is equivalent to 4 tons of litter, or less per acre of land with slope less than 8% and soil more than 20" deep. For High rating of soil with STP between 250 and 400, NRCS recommended half of the application rate for phosphorus.

The results of samples collected by ODAFF inspectors also indicated that more than 77% of the samples exceeded the STP of 120 and more than 33% of the samples exceeded the STP of 300.

- **Impact Evaluation of Land Application of Poultry Litter on the Watersheds:**
Since the above samples do not cover all lands located in the watersheds, that are either being used as land application sites or that may be available for future land application sites, the extra phosphorus loading, above and beyond the soil capacity for agronomic use, could not be accurately estimated. On the other hand, the limited data of STPs for lands currently being used for litter application in the watersheds, which have been submitted by Poultry Litter Applicators in their 2002 annual reports to the ODAFF office, showed a better picture with approximately 10% of the samples exceeding the STP of 250, 26% of samples exceeding STP 120, and 5% of samples exceeding STP 300. Based on a threshold of STP of 250 and the results of soil tests collected by ODAFF inspectors, we assumed that 39% of lands located in the watersheds that are being used for litter application are at capacity for P loading. Similarly, based on STP thresholds of 120 and 300, and ODAFF inspectors soil test results, the percentage of land at capacity for P loading corresponding to these thresholds would be 77% and 33% respectively. As a conservative measure for pollution prevention at the source, it is estimated that the amounts of extra poultry litter presented below, based on different STP thresholds of 120, 250 and 300, should either be transferred out of each watershed or be applied onto other available lands in the watersheds:

Table 2: Estimated Amount of Litter to be transferred out of Watersheds or Applied on Other Available Lands in the Watersheds Corresponding to Different STP Thresholds

<u>Watersheds</u>	<u>Extra Litter (STP 120)</u>	<u>Extra Litter (STP 250)</u>	<u>Extra Litter (STP 300)</u>
UIR	60,024 tons	30,402 tons	25,724 tons
LLC	976 tons	494 tons	418 tons
UMF	2,404 tons	1,218 tons	1,030 tons
Total	63,404 tons	32,114 tons	27,172 tons

The percentage of lands at capacity for P loading and the estimated amount of extra litter above will be revised once all STPs data are submitted to and verified by ODAFF and/or additional STP samples are collected by ODAFF

inspectors. These values will also be reevaluated based on the updated STP thresholds once revised or finalized by NRCS and/or OSU.

Depending on the terrain and slopes of the sites, the proximity to the Scenic Rivers and the nature and conditions of the intermediate zones between the sites and the waters, the impact could be significant or negligible. Therefore, to accurately estimate the impact of agricultural activities on water quality of Scenic Rivers, especially of the poultry operations in the watersheds, in-stream monitoring stations to measure nutrient levels up and downstream of the operations, and at the Oklahoma-Arkansas state line for monitoring of interstate phosphorus contributions should be established. Monitoring data will also help in reevaluating the effectiveness of pollution prevention measures applied in the watershed and the appropriateness of currently recommended STP threshold value. In monitoring nutrient levels at the edge of the operation fields or land application areas, site-specific STP threshold could be developed for each watershed and put in use for stricter control of Phosphorus loading in the watershed.

- Status of Nursery Operations: There are three (3) large containerized plant nurseries along the Illinois River that have had irrigation tailwater return flow enter the river. These operations were monitored monthly for nitrate-nitrogen, total-phosphorous and pesticides from 1989 to 2001. One operation became totally contained in 1998 and only has runoff leaving their property during large rainfall events. These nurseries signed voluntary compliance agreements with ODAFF to reduce their yearly average nitrate level in their discharge from a high of 27.99 mg/l NO₃-N in 1989 to 10 mg/l in 1996. They also agreed to reduce the Phosphorus (total) level down to 1 mg/l.

One existing large nursery with 120 acres in production was closed in 2003, and reopened under new management with only 20 acres in production. This has reduced the amount of irrigation tailwater entering the river, so as the amount of nutrient input to the watersheds. No new nursery operation came into existence along any of the scenic rivers in 2003.

II- Setting Goals for Reducing the Impact:

- Phase 1: 50% reduction of existing agricultural sources, to be achieved in 5 years.
- Phase 2: 100% of existing agricultural sources, to be achieved in 10 years.

Depending on resources available, the results of further soil sampling and the assessment of the level of impact contributed by agricultural sources on the watersheds, the above goals could be reevaluated in the future.

III- Strategy to Achieve the Goals:

(1) For Poultry operations:

- Evaluate the accuracy of STP data of lands located in the watersheds as submitted by poultry applicators through required annual reports to ODAFF; spot check the STPs, by conducting on site inspection and soil sample collection. Notify the applicators of the sites with currently more than an STP of 250 and do not allow them to apply additional litter on these lands.
- Coordinate with growers in locating available lands in the watersheds with STP less than 250 for future land application of litter. This will help determine the amount of litter, if any, to be transferred out of the basins/watersheds.
- Measure in-stream P levels upstream and downstream of the poultry operations and/or litter land application sites by setting up monitoring stations in the Scenic Rivers. Get access to currently available OWRB BUMP or USGS data on nutrient levels in the watersheds.
- Evaluate the above data to determine effectiveness of land application restrictions, and the appropriateness of the recommended STP threshold value.
- Select a typical litter land application site located within ¼ miles of a scenic river, coordinate with grower and/or NRCS to monitor phosphorus levels in the runoff water within 100 feet outside of the perimeter of the land application field after storm events, and to measure the phosphorus content of the soil of the field to determine the phosphorus amount leaving the field, if any, in order to develop or adjust the STP threshold specific for the watershed or sub-watershed.
- Continue to assist growers in developing nutrient management plans.
- Accelerate inspection and enforcement actions against violators of the Registered Poultry Feeding Operations Act and the permanent rules, and those who do not comply with requirements of Animal Waste/Nutrient Management Plans.
- Coordinate with intra and interstate agencies/entities in developing comprehensive nutrient management plans for the point and non-point sources located in the impaired watersheds.
- Continue to pursue cost-effective alternative methods of disposal of excess litter through ODAFF Market Development Division and Office of the Secretary of the Environment.

(2) For Nursery Operations:

- Conduct an inventory of fertilizer and pesticide operations in the scenic river watersheds.
- Monitor the irrigation return flow of the two remaining nurseries to maintain compliance with the voluntary compliance agreements and the new phosphorus standard.
- Monitor the river upstream and downstream from the nursery operations to determine if impact to the river is occurring.
- Assist operations with developing management plans to reduce nutrient loading.
- Involve pesticide manufacturers if pesticides are detected in any irrigation tailwater due to normal label use.
- Work toward total retention and recycling of the irrigation water with the use of state and federal assistance within 10 years.

IV- Tasks Performed by ODAFF:

(1) For Poultry Operations:

- Assisted growers in developing Animal Waste/Nutrient Management Plans. Currently more than 76% of poultry operations in the watersheds have submitted copies of these plans to ODAFF. An additional 25% of poultry operations have submitted the plans to ODAFF during this 2003 calendar year.
- Conducted inspections of all poultry operations located in the watersheds. 165 inspections were made in fiscal year 2003 (7/1/02-6/30/03).
- 205 technical assistances were provided in 2003 fiscal year to the poultry operations located in the watersheds.
- Enforcement actions against violators of poultry statutes and rules, which are located in the watersheds: In the 2003 calendar year 88 of the actions were taken in the form of warning letters. It was 15 % more actions taken this year compared to last year.
- Starting January 2004, ODAFF will cooperate with EPA in an outreach program to identify animal feeding operations qualified as CAFO for permitting under EPA's new CAFO rules. Approximately 10 poultry operations in the watersheds would fall into this category. Thus, they will better manage their waste; and would improve water quality of the watersheds.

(2) For Nursery Operations:

- Nursery operations were monitored monthly for nitrate-nitrogen, total-phosphorous and pesticides from 1989 to 2001. Results have been published in *The Curtis Report 1989-1992*, 1993, 1994, 1995, 1996, 1997
- Signed voluntary compliance agreements with nursery operations to reduce nutrient loading.
- Notified nurseries when they were out of compliance.
- Revised the nursery inspection form to reflect the status of runoff from rainfall and irrigation water; and to take samples if water is leaving the property.
- Completed 22 routine inspections during FY 2003 on the two operations located in the Illinois River watershed.
- Conducted 4 pesticides facility inspections on the operations in the Illinois River watersheds.



Watershed plan critical, Arkansans on panel say

BY ROBERT J. SMITH

Posted on Friday, September 29, 2006

URL: <http://www.nwanews.com/adg/News/168099/>

MONKEY ISLAND, Okla. — Arkansas officials criticized their Oklahoma counterparts Thursday for failing to help develop an Illinois River watershed management plan.

Oklahoma should show more interest in such a plan, Arkansas' Randy Young said during the annual meeting of the Arkansas-Oklahoma Arkansas River Compact Commission.

"We haven't even been able to get a meeting with Oklahoma to start working on that," said Young, a commissioner who also directs the Arkansas Natural Resources Commission.

Oklahoma commissioners said developing a plan with a federal lawsuit pending against poultry companies in Arkansas would be difficult.

"It's the poultry question," said Oklahoma commissioner Miles Tolbert, the state's secretary of environment. "Until that's resolved, I wouldn't be too optimistic about a plan."

Tolbert met briefly with Young after Thursday's meeting, agreeing that they'd communicate soon to see if there's any point in talking about a plan for the watershed that's partly in each state.

Young believes Oklahoma is refusing to work on the plan because Oklahoma Attorney General Drew Edmondson has told state agencies not to meet with Arkansas officials about anything of significance, Young said in an interview. Young thinks that's because of a federal lawsuit, filed by Edmondson in June 2005, that accuses the companies of polluting the watershed with runoff from poultry litter.

"I think [Edmondson] doesn't want them to talk," Young said. "That's it."

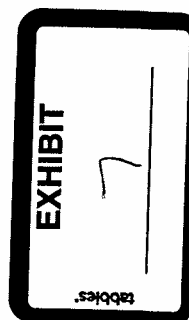
Charlie Price, a spokesman for Edmondson's office, said Young is wrong.

"There's been no directive from us," Price said in a telephone interview. "Absolutely not. I don't know anything about a canceled meeting."

Edmondson in a previous interview said he discouraged Oklahoma state agencies from meeting with Arkansas officials if the attorney general's office wasn't "privy" to what was being discussed.

The states signed a "statement of joint principles and actions" regarding the Illinois River watershed in December 2003. At the time, Arkansas Gov. Mike Huckabee called it the end to a "bitter, harsh, sometimes unfriendly conflict" between the states.

The document, approved by the federal Environmental Protection Agency, includes provisions that require Northwest Arkansas' largest cities to reduce the amount of



phosphorus they discharge into streams that flow into Oklahoma. It also encourages the states to work together on ways to use excess poultry litter and to develop the watershed plan that Young mentioned Thursday.

Luanne Diffin, chairman of the Illinois River Watershed Partnership, said in a telephone interview that a meeting about the management plan was scheduled last spring in Van Buren. The partnership received a grant from the Arkansas Natural Resources Commission to help develop the plan. Arkansas state officials planned to attend.

Diffin said Dan Butler, water quality director for the Oklahoma Conservation Commission, called the day before the meeting and said he was "told he couldn't come."

"Dan called and said he couldn't meet because of the litigation, and it wasn't advisable because of the litigation," Diffin said.


Butler and Mike Thralls, director of the Oklahoma Conservation Commission, were out of the office Thursday attending funerals and were unavailable for comment.

"We are going to do a watershed management plan in Arkansas, with or without Oklahoma," Young said. "We're ready to proceed."


Poultry litter, the concoction of wood chips, rice hulls and bird manure that's removed from poultry houses, is spread by farmers on fields to help crops grow. Litter contains phosphorus, which can be carried by rain into streams, where it can degrade water quality.

"Unfortunately, the legal aspects have taken over and we are at a standstill," said Richard Seybolt, the compact commission's federal chairman. "When this is resolved, we need to be in position to do our work."

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Compact Commission Sits While Poultry Suit Moves Forward

THIS ARTICLE WAS PUBLISHED ON THURSDAY, SEPTEMBER 28, 2006 10:16 PM CDT IN NEWS

By John L. Moore
THE MORNING NEWS

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GRAND LAKE O' THE CHEROKEES, Okla. -- A federal lawsuit involving Oklahoma and area poultry companies has had a chilling effect on the work of the Arkansas-Oklahoma Arkansas River Compact Commission, said the commission's chairman.

"I thought we had had some excellent dialogue in the past couple of years between the two states developing a monitoring program," said Dick Seybolt, chairman of the commission.

"Unfortunately, legal aspects of our society have taken over, and we are at a standstill until we can get that suit resolved," Seybolt said.

Oklahoma Attorney General Drew Edmondson sued eight poultry companies and six of their subsidiaries in June 2005 for contributing to excessive nutrients and pollution in the Illinois River watershed.

Edmondson says that poultry litter is primarily responsible for the high level of phosphorus in the Illinois River and its tributaries.

Phosphorus, a nutrient necessary for plant growth in water and on land, can cause rampant algae in streams and reservoirs if the level is too high. Too much algae can lead to poor water quality and kill off other aquatic life.

The statement from Seybolt to open up the 2006 annual meeting of the compact commission set the tone for a brief and somewhat strained meeting.

No action was taken other than to accept various state and federal agencies' reports on water quality and stream flows in the Arkansas River basin, particularly the Illinois River watershed.

The two states have been unable to secure additional money for an expanded monitoring program developed over the past two years by the commission.

The two states have also not met to discuss a joint watershed plan for the Illinois River, said Randy Young, executive director of the Arkansas Natural Resources Commission. Young is also one of three commissioners from Arkansas on the compact commission.

The joint watershed plan is one of the main points in the two states' statement of joint principles that helped seal a deal on phosphorus emissions from wastewater treatment plants in the basin in 2003.

Young said a meeting to discuss the plan was canceled after Oklahoma officials said they would not attend.



The meeting was set up by the recently formed Illinois River Watershed Partnership, a nonprofit group. Oklahoma officials questioned why the partnership would call a meeting that dealt with items from the joint statement of principles.



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The Morning News: News : Compact Commission Sits While Poultry Su... <http://www.nwaonline.net/articles/2006/09/28/news/092906azcompact..>

Derek Smithee, chief of the water quality program division of the Oklahoma Water Resources Board, said last spring that Oklahoma officials would not attend.

Oklahoma Secretary of the Environment Miles Tolbert said he had not been informed there was a meeting scheduled but questioned whether any progress could be made with the poultry issues still hanging in the air.

"I don't believe anything has changed that would bring us to a resolution," Tolbert said.

Young said, "We are going to do a watershed plan on the Arkansas side whether Oklahoma joins us or not."

The two states met in Dallas soon after the joint agreement was signed, but issues with the poultry companies prevented real progress on a watershed plan, Tolbert said.

"I doubt Arkansas officials are going to make any agreement that the poultry companies wouldn't agree to," Tolbert said after the commission meeting.

At A Glance

Compact Commission

The Arkansas-Oklahoma Arkansas River Compact Commission met Thursday at Shangri La Conference Center at Grand Lake O' The Cherokees in Oklahoma. The commission was formed in 1970 to regulate interstate concern over water in the Arkansas River basin near the border of the two states. The Illinois River is a tributary of the Arkansas River.

Source: Staff Report

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